REMARKS

The present amendment is prepared in accordance with the requirements of 37 C.F.R. § 1.121. A complete listing of all the claims in the application is shown above showing the status of each claim. Applicants appreciate the thoroughness with which the Examiner has examined the above-identified application. Reconsideration is requested in view of the remarks below.

Claims 1, 13, 16 and 17 have been amended. Support for the substantive claims amendments can be found in the specification at [0053] and in Figs. 1B-3C.

No new matter has been added.

Rejection under 35 USC § 112, second paragraph

The Examiner has rejected claim 17 for insufficient antecedent basis. Applicants have amended claim 17 to clarify that it is dependent upon claim 16 and, as such, the antecedent basis error is now corrected.

The Examiner has also rejected claims 13-20 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants have amended claim 13 and, as such, claims 14-20 dependent thereon, to clarify that the plurality of horizontal openings connect selected ones of the plurality of vertical openings. It is submitted that these amendments overcome the rejection under 35 U.S.C. 112, second paragraph.

No new matter has been added.

Rejection under 35 USC § 102

The Examiner has rejected claims 1-5 under 35 U.S.C. 102(b) as being anticipated by Burdon et al (WO/0021659). Applicants disagree.

Independent claim 1 is directed to a ceramic micro well plate that includes a first ceramic greensheet having at least one vertical opening that is a reaction chamber of the micro well plate, and a second ceramic greensheet under the first ceramic greensheet. The second ceramic greensheet has at least one vertical opening that is aligned with the vertical opening in the first ceramic greensheet. An optical micro plug residing within and entirely fills the second vertical opening in the second ceramic greensheet, whereby this optical micro plug allows viewing of the reaction chamber of the micro well plate by residing at a bottom thereof.

Again, an essential feature is that the optical micro plugs fill vertical openings in a greensheet and, as such, are vertical optical micro plugs. These vertical optical micro plugs are in alignment with vertical openings in another greensheet that represent the reaction chambers of the present micro well plate, such that, each optical micro plug is part of its corresponding micro well. These optical micro plugs may be lenses (claim 5).

Applicant submits that the present invention is not anticipated by Burdon et al. Anticipation is but the ultimate or epitome of obviousness. To constitute anticipation, all material elements of a claim must be found in one prior art source. In re Marshall, 577 F.2d 301, 198 USPQ 344 (CCPA 1978).

It is submitted that Burdon et al (WO/0021659) discloses laminated and sintered greensheets (See Page 5 lines 26-29, Page 10 lines 17-20) that include a first greensheet

1652 having a vertical opening aligned with a vertical opening in a second greensheet 1654. (See Figure 43 Items 1652, 1654.) However, feature 1668 of Figure 43 cited by the Examiner is not a vertical optical micro plug that fills a vertical opening within a greensheet, as is claimed. Rather, Burdon et al. recites that feature 1668 is a hydrophobic region of a hydrophobic material sintered to layer 1654 and encircles part of vertical channel 1664 to provide a capillary stop. (See, Page 64 and Figs. 43 and 44.) The method of forming hydrophobic region 1668 is shown schematically in Figure 44, whereby is is described and shown that this region 1668 does not fill the opening in green-sheet layer 1654 since it has a via 1708. (See, Pages 64-65 and Figs. 43 and 44.)

In view of the foregoing, it is submitted that feature 1668 of Burdon et al is not an "optical micro plug," as is claimed. Rather, it is merely a hydrophobic region 1668 that is used for capillary stop purposes. It is for these reasons that applicants submit that claims 1-5 are not anticipated by Burdon et al.

Rejection under 35 USC § 103

The Examiner has also rejected claims 6-20 under 35 U.S.C. 103(a) as

being unpatentable over Burdon et al.

Claims 6-12 are dependent upon claim 1 and further define the optical micro plug of claim 1, which may respectively be a magnet, a sensor, a plug having marker molecules for identification and quantification of a target, a conductive optical micro plug, a non-conductive optical micro plug, a heater or a cooler. Since these claims are dependent upon claim 1, they are also directed to a ceramic micro well plate that includes a first ceramic greensheet having at least one vertical opening that is a reaction chamber of the

micro well plate, and a second ceramic greensheet under the first ceramic greensheet. The second ceramic greensheet has at least one vertical opening that is aligned with the vertical opening in the first ceramic greensheet. An optical micro plug residing within and entirely fills the second vertical opening in the second ceramic greensheet, whereby this optical micro plug allows viewing of the reaction chamber of the micro well plate by residing at a bottom thereof.

For the reasons as discussed above, Burdon et al. is limited to disclosing a hydrophobic region 1668 within an open via. (See, Pages 64-65 and Figs. 43 and 44.) It does not disclose, contemplate or even suggest a plate having an "optical micro plug" residing at a bottom of a reaction chamber for the viewing thereof, as is claimed. Burdon et al. does not anticipate nor render obvious the instant invention since Burdon et al. does not teach or suggest vertical optical micro plugs that are part of vertical micro wells for viewing the vertical reaction chambers thereof.

Independent claim 13 is also directed to a ceramic micro well plate that includes first, second and third ceramic greensheets. The first ceramic greensheet has a plurality of vertical openings, which are reaction chambers of the micro well plate. The second ceramic greensheet is under the first ceramic greensheet and has a plurality of horizontal openings connecting selected ones of the vertical openings in the first greensheet. The third greensheet is under the second ceramic greensheet and has a plurality of vertical openings aligned with the vertical openings in the first greensheet, whereby optical micro plugs reside within and entirely fill these vertical openings in the third greensheet to allow viewing of the reaction chamber of the micro well plate by residing at a bottom thereof.

Independent claim 16 is directed to a method of forming a ceramic micro well plate by forming a plurality of vertical openings in a first ceramic greensheet, whereby these vertical openings are reaction chambers of the micro well plate. A second ceramic greensheet is provided and a plurality of vertical openings formed therein. The second ceramic greensheet is provided under the first ceramic greensheet, and the plurality of vertical openings in the second and first greensheet are aligned with one another. An optically effective material is deposited to fill the vertical openings in the second greensheet to form a plurality of optical micro plugs therein. These optical micro plugs reside at the bottom of the reaction chambers of the micro well plate to allow viewing of these reaction chambers.

As discussed in detail above, claims 13-20 are not anticipated by nor rendered obvious over Burdon et al., since Burdon et al. does not disclose, contemplate or suggest vertical optical micro plugs that reside under (i.e., at a bottom of) a reaction chamber of a micro well plate for viewing such reaction chamber. Rather, Burdon et al. is limited to disclosing hydrophobic regions 1668 (See Fig. 43) and 1636 (See Fig. 42) that are sintered to a greensheet and having via openings therein, whereby the purpose of these hydrophobic regions 1668, 1636 is to act as capillary stops. (See also, Pages 64-65 and Figs. 43 and 44.) These hydrophobic regions 1668, 1636 are not optical plugs, nor do they fill the via openings.

The Examiner makes reference to Briscoe et al (WO01/41931) and Burdon et al (EP1314472); however, it is submitted that neither one of these references disclose, contemplate or suggest vertical optical micro plugs that reside under (i.e., at a bottom of) a

reaction chamber of a micro well plate for viewing such reaction chamber, nor methods of making the same, as is currently claimed. On the contrary, referring to Fig. 3, Briscoe et al (WO01/41931) discloses a window 294 of an optically transmissive material provided in layer 102 over a channel 170. It is not a vertical optical micro plug at the bottom of a reaction chamber for the viewing thereof.

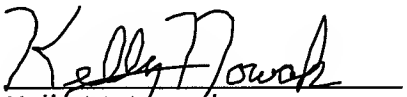
As for the Burdon et al (EP1314472) reference, it is submitted that EP1314472 to Burdon et al. is the corresponding European filing of WO/0021659 to Burdon et al. and, as such, encompasses the same disclosure. For the reasons as discussed in detail above, feature 1668 is merely a hydrophobic region of a hydrophobic material sintered to layer 1654 and encircles part of vertical channel 1664 to provide a capillary stop.

It is again submited that the micro well plates of the present invention have technical advantages not present in the prior art micro wells. It is known in the art that when fluid is introduced into a micro well, a meniscus forms on the top end of the fluid column. This meniscus is undesirable since it causes light to be scattered or rebounded, which undesirably distorts the light or provides incorrect results. The present invention overcomes this problem associated with the meniscus at the fluid top by providing the present vertical optical micro plug at the bottom of a fluid column where there is no meniscus interference.

It is respectfully submitted that the application has now been brought into a condition where allowance of the case is proper. Reconsideration and issuance of a Notice of Allowance are respectfully solicited. Should the Examiner not find the claims to

be allowable, Applicants' attorney respectfully requests that the Examiner call the undersigned to clarify any issue and/or to place the case in condition for allowance.

Respectfully submitted,



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